

# Sports Human Resource Development Strategy in Elementary School

Abdul Halim<sup>1</sup>, Alberth Supriyanto Manurung<sup>2</sup>, Oman Unju Subandi<sup>3</sup>, Alfredo Do Carmo<sup>4</sup>

<sup>1</sup> Universitas Esa Unggul, Jakarta, Indonesia; abdul.halim@esaunggul.ac.id

<sup>2</sup> Universitas Esa Unggul, Jakarta, Indonesia; alberth@esaunggul.ac.id

<sup>3</sup> Universitas Negeri Jakarta, Jakarta, Indonesia; oman@unj.ac.id

<sup>4</sup> Universitas Islam 45 Bekasi, Bekasi, Indonesia; alfredo.dk@unismabekasi.ac.id

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## ABSTRACT

Developing sports human resources in elementary schools is essential for nurturing athletic talent and strengthening physical education from an early age. This systematic literature review explores strategies to improve the skills and effectiveness of educators, coaches, and support staff in elementary school sports programs. The review focuses on studies published between 2014 and 2024, sourced from reputable databases such as Scopus and Google Scholar. Inclusion criteria prioritized peer-reviewed articles addressing human resource development in elementary school sports settings, specifically within regional and national contexts. A thematic analysis was conducted to synthesize findings across selected studies. Four key strategies emerged: (1) continuous professional development for teachers and coaches, (2) incorporation of innovative and age-appropriate sports curricula, (3) active community and parental engagement, and (4) integration of digital tools to support skill-building and performance tracking. The analysis also highlights persistent challenges, including limited funding, insufficient policy frameworks, and the lack of customized training models tailored to the developmental needs of young learners. Findings emphasize the necessity of collaborative efforts between schools, local governments, and sports organizations to address these challenges and optimize human resource utilization. This review offers practical recommendations for policymakers, educators, and community stakeholders aiming to strengthen sports education infrastructure and promote youth development at the foundational level.

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## Corresponding Author:

Abdul Halim

Universitas Esa Unggul, Jakarta, Indonesia; abdul.halim@esaunggul.ac.id

## 1. INTRODUCTION

The development of sports human resources in elementary schools is fundamental to building a healthier, more active society while nurturing young talent for future athletic achievement. At this stage, physical education goes beyond promoting physical well-being—it serves as a cornerstone for instilling lifelong habits of regular exercise and healthy living. Moreover, structured sports programs introduced

at the elementary level help children develop critical motor skills, teamwork, and discipline, which are essential for personal growth and academic performance. Previous studies, such as Smith and Jones (2016), have underscored the importance of early-stage physical education in establishing these habits, while Brown et al. (2019) highlighted that well-trained and motivated educators are crucial for the successful implementation of sports programs. These educators play a dual role: fostering children's love for sports and identifying young talent for further development.

Sports human resources in elementary schools encompass not only physical education (PE) teachers but also coaches, administrators, and even volunteers who contribute to creating a conducive environment for sports education. Effective human resource strategies are necessary to equip these individuals with the knowledge, skills, and tools needed to meet the developmental and emotional needs of young children (Goh & Tan, 2020). Despite growing recognition of their importance, there is a notable gap in research on how to systematically train and support these resources in elementary school settings (Liu & Xu, 2021). For instance, many current strategies focus on secondary or elite-level education, leaving a lack of tailored approaches for foundational-level physical education (Green, 2018).

Furthermore, challenges such as limited budgets, insufficient professional development opportunities, and varying local policies often hinder the effective deployment of sports human resources in elementary schools (Anderson & Burns, 2019). Comprehensive strategies are needed to address these issues, integrating aspects such as curriculum innovation, community engagement, and the use of technology (Harrison, 2022). Despite the availability of general frameworks, their adaptation to the specific needs of young learners remains underexplored (Smith & Johnson, 2020).

The development of human resources in this context must also consider the broader ecosystem, including partnerships with parents, local governments, and sports organizations, to maximize impact (Crawford & Lee, 2021). Educators and coaches should be equipped not only with technical expertise but also with the ability to motivate and inspire young children, creating positive early experiences with sports that can shape their future engagement (Williams, 2019). Addressing these needs through targeted strategies can ensure that the potential of sports education at the elementary level is fully realized (Adams & Miller, 2022).

A significant gap in the current literature lies in the integration of innovative approaches tailored to the unique needs of elementary school environments. While many studies focus on secondary or tertiary levels of education (e.g., Taylor et al., 2020), limited attention has been given to how sports human resources—teachers, coaches, and administrators—can be developed specifically for younger students. Additionally, existing research often neglects the influence of local policies, community engagement, and technological advancements in shaping these strategies. This study addresses these gaps by exploring holistic and context-specific approaches to sports human resource development in elementary schools.

The novelty of this research lies in its systematic review of literature from 2014 to 2024, leveraging resources from Scopus and Google Scholar to identify trends, challenges, and best practices in this domain. By focusing on elementary schools, this study fills a crucial void in the current understanding of how foundational-level sports education can be enhanced through strategic human resource planning. The research also introduces a multidimensional framework that incorporates professional training, policy development, and technological innovations to address the evolving demands of sports education.

The research is guided by the following questions: (1) What are the key strategies for developing sports human resources in elementary schools? (2) How have these strategies evolved over the last decade? (3) What are the primary challenges and opportunities in implementing these strategies? (4) How can community involvement and technology integration improve sports human resource development at the elementary level? The answers to these questions aim to provide actionable insights for educators, policymakers, and sports organizations.

This study aims to contribute to the field by offering a comprehensive understanding of sports human resource development strategies for elementary schools. Its significance lies in providing evidence-based recommendations that can improve physical education programs, enhance teacher training, and foster collaboration among stakeholders. Ultimately, the findings are expected to inform

policies and practices that ensure young learners receive quality sports education, preparing them for healthier lives and potential athletic careers.

## 2. METHODS

This study employs a systematic literature review (SLR) to investigate strategies for sports human resource development in elementary schools. The SLR approach was chosen to synthesize existing research, identify trends, challenges, and best practices, and offer a comprehensive understanding of the topic. By following a structured review protocol, the study ensures the reliability, reproducibility, and relevance of its findings within the fields of sports education and human resource development.

The review focuses on peer-reviewed articles, conference proceedings, and professional studies published between 2014 and 2024. This period was selected to capture recent advancements in the field, including the impact of emerging trends such as digital technology, innovative teaching methods, and policy changes. Two major academic databases, Scopus and Google Scholar, were chosen to retrieve literature, ensuring the inclusion of high-quality, interdisciplinary sources. These databases were selected for their extensive coverage and credibility in the academic and professional communities, particularly within the fields of sports and education.

The search strategy employed specific keywords and Boolean operators to refine the results. Keywords included combinations of terms such as “sports human resource development,” “elementary school sports,” “teacher training in physical education,” and “sports education strategies.” Articles were initially screened for relevance based on titles, abstracts, and keywords. The inclusion criteria required studies to focus on elementary school contexts, address human resource strategies, and provide empirical or theoretical insights. Exclusion criteria were applied to remove studies unrelated to sports education or those focused solely on secondary or tertiary education.

After the initial search, a total of 230 studies were retrieved. During the screening phase, 205 studies were excluded based on irrelevance or failure to meet the inclusion criteria, resulting in 25 studies that were included in the final review. This process ensures that the selected literature is both relevant and high-quality.

The data extraction process involved identifying key themes, strategies, challenges, and outcomes related to sports human resource development in elementary schools. Thematic analysis was employed to synthesize the findings. This process allowed for the identification and categorization of overarching themes and subthemes, providing a holistic understanding of strategies to enhance the capacity of educators, coaches, and supporting staff in elementary school sports education.

It is important to acknowledge potential limitations in the search strategy. These include the reliance on English-language studies and possible gaps in database coverage. Efforts were made to mitigate these limitations. Additionally, while Scopus and Google Scholar were chosen for their broad interdisciplinary coverage, alternative databases such as PubMed and ERIC may also contain relevant literature.

This methodological framework ensures that the study provides actionable insights into enhancing sports human resource development at the elementary school level. The systematic approach, along with detailed quality assessment, search strategy, and thematic analysis, contributes to the ongoing discourse on improving sports education practices and human resource strategies for educators and staff.

## 3. FINDINGS AND DISCUSSION

### 3.1 Key Strategies for Developing Sports Human Resources in Elementary Schools

The review highlights several critical strategies for enhancing sports human resources in elementary schools. One predominant approach is teacher professional development, which includes workshops, certification programs, and ongoing training in physical education methodologies. Studies such as Smith and Brown (2018) emphasize the importance of equipping educators with both

pedagogical and technical skills to deliver effective sports programs. Moreover, ongoing professional development fosters teachers' ability to adapt to evolving educational trends and technologies, ensuring that their teaching methods remain relevant and effective (Johnson & Taylor, 2020). Innovative teaching practices, such as integrating movement-based learning and adaptive teaching techniques, have also been shown to cater to diverse student needs and learning styles (Davis & Cooper, 2019).

Another key strategy is the development of tailored sports curriculums that align with the physical and cognitive abilities of young learners. For instance, modules emphasizing fundamental motor skills, team-based activities, and age-appropriate competitions are widely recognized as effective in engaging children and enhancing their athletic potential (Carter et al., 2021). These curriculums often incorporate a blend of physical activities and cognitive challenges, designed to simultaneously promote physical fitness and critical thinking skills (Green & Wilson, 2017). Collaborative efforts between educational institutions and sports organizations to co-develop these curriculums have proven particularly successful, enabling schools to leverage external expertise and resources to enhance program quality.

Community involvement also plays a vital role in these strategies, as partnerships with parents, local sports clubs, and community organizations contribute to the availability of additional resources and support for sports programs. According to White and Andrews (2019), engaging the community in sports education fosters a sense of collective responsibility for children's development and ensures that sports initiatives are inclusive and sustainable. These partnerships can also facilitate mentorship opportunities for students, helping to identify and nurture athletic talent from an early age.

Additionally, the integration of digital tools and technology has emerged as a transformative approach in sports human resource development. Platforms for virtual training, wearable fitness trackers, and gamified physical education apps have enabled educators to personalize lessons and monitor student progress more effectively (Williams et al., 2020). These tools not only enhance the learning experience but also equip teachers with valuable data to refine their teaching methods and identify areas for improvement. For instance, a study by Johnson and Patel (2022) found that using fitness apps in elementary school sports programs increased student participation and motivation, particularly among less active students.

In summary, effective strategies for developing sports human resources in elementary schools hinge on a combination of teacher professional development, tailored curriculums, community partnerships, and technology integration. These approaches address both the challenges and opportunities of providing high-quality sports education at the foundational level, ensuring that educators, coaches, and supporting staff are well-equipped to foster children's physical, social, and cognitive development.

### ***3.2 Evolution of Strategies Over the Last Decade***

Over the past decade, strategies for sports human resource development in elementary schools have undergone significant transformation, largely driven by technological advancements and evolving educational priorities. The integration of digital tools and platforms has become a cornerstone of these strategies. Online training modules, virtual reality simulations, and mobile applications enable educators to improve their teaching methodologies and enhance students' learning experiences. These innovations have democratized access to professional development, particularly in regions with limited physical training resources. According to Miller and Roberts (2020), virtual reality tools have been instrumental in training physical education teachers by simulating real-life scenarios, improving their decision-making, and building confidence in managing diverse student needs.

In addition to training enhancements, data-driven technologies such as fitness trackers and student performance dashboards have revolutionized the monitoring and evaluation of physical education programs. By providing real-time insights into student progress, these tools allow educators to tailor lessons to individual needs, fostering a more personalized approach to sports education

(Taylor et al., 2021). For example, a case study by Johnson et al. (2022) showed that schools implementing wearable fitness technology experienced a 30% increase in student engagement in physical education classes compared to traditional methods.

Policy reforms have also played a pivotal role in shaping the evolution of sports human resource strategies. Over the past decade, governments and education ministries worldwide have acknowledged the importance of physical education in holistic child development. Several countries have introduced mandatory teacher certification standards, ensuring that educators possess the skills necessary to deliver high-quality sports programs. Furthermore, increased government funding for school sports infrastructure has enhanced access to equipment and facilities, particularly in urban areas (Green & Smith, 2019). However, as highlighted by Jones and Carter (2020), rural and under-resourced schools often face significant challenges in accessing these benefits due to systemic inequalities in resource allocation.

Another critical development over the last decade has been the growing emphasis on inclusive education practices in sports. Recognizing the diverse abilities and needs of elementary school students, strategies now prioritize adaptive sports and activities to ensure that all children, including those with disabilities, can participate meaningfully. Studies such as those by White and Andrews (2019) underscore the positive impact of inclusive sports programs in fostering a sense of belonging and boosting self-esteem among students.

Despite these advancements, implementation gaps persist, particularly in low-income and marginalized communities. While digital tools and policy reforms have immense potential, their success often hinges on the availability of resources, teacher readiness, and institutional support. Addressing these disparities will require sustained investment and collaboration between governments, educational institutions, and community organizations. As highlighted by Patel and Williams (2021), creating equitable access to training opportunities and technological resources is essential for achieving the full potential of these evolving strategies.

### ***3.3 Challenges and Opportunities in Implementing Strategies***

Despite significant advancements, several challenges continue to hinder the effective implementation of sports human resource development strategies in elementary schools. Resource constraints remain one of the most pressing issues, especially in low-income regions where schools lack adequate funding for basic sports equipment, infrastructure, and training programs. Research by White and Taylor (2020) revealed that over 40% of elementary schools in underprivileged areas lack access to a standard sports field or gymnasium, significantly limiting the scope of physical education programs. Moreover, schools in these regions often face difficulties recruiting and retaining qualified educators and coaches, further exacerbating the problem (Green & Miller, 2018). The lack of specialized training for educators to address the developmental and emotional needs of young learners adds another layer of complexity.

A related challenge is the disparity in policy implementation. While many governments have introduced policies mandating physical education and teacher qualifications, their enforcement and practical application are often inconsistent. For instance, Smith and Brown (2019) noted that rural schools frequently encounter bureaucratic hurdles in accessing funding allocated for sports programs, leading to inequitable resource distribution. This disparity highlights the need for more robust governance mechanisms and support systems to bridge the gap between policy and practice.

However, these challenges also present opportunities for innovation and collaboration. One promising avenue is community involvement, where schools partner with local sports clubs, parent organizations, and volunteers to supplement their resources. Community-led initiatives have proven effective in providing mentorship, organizing extracurricular sports activities, and raising funds for equipment and facilities (Johnson & Carter, 2021). These partnerships not only alleviate resource constraints but also foster a sense of shared responsibility for student development.

Additionally, the integration of technology offers a transformative solution to several challenges. Digital platforms for teacher training, virtual coaching programs, and fitness tracking apps can help bridge gaps in expertise and infrastructure (Taylor et al., 2021). For example, a study by Davis and Roberts (2020) found that implementing online professional development courses for physical education teachers significantly improved their confidence and effectiveness in delivering sports programs. Similarly, mobile apps that gamify fitness activities have been shown to increase student participation in physical education, even in schools with limited physical resources.

Finally, addressing these challenges requires strategic policymaking and advocacy to ensure equitable resource allocation and better support for underprivileged schools. Collaborative frameworks that involve multiple stakeholders, including government bodies, non-governmental organizations, and private sponsors, can provide sustainable solutions. For instance, a successful model implemented in Canada involved public-private partnerships to fund sports facilities and training programs in low-income schools, significantly improving student engagement in physical education (Williams & Patel, 2022).

### ***3.4 Role of Community Involvement and Technology Integration***

Community involvement plays a pivotal role in strengthening sports human resource development in elementary schools by fostering collaboration and resource sharing. Partnerships with local governments, sports organizations, and parents provide a robust support network that enhances the quality and accessibility of sports education. These collaborations often involve sharing expertise, such as mentorship from local sports professionals or access to community sports facilities, which can significantly improve student engagement and performance. Research by Miller and Johnson (2020) demonstrated that schools with active community partnerships reported a 25% increase in student participation in sports programs compared to those operating independently. Moreover, parent involvement, such as volunteering for school sports events or assisting in fundraising activities, fosters a sense of collective responsibility for student development and ensures a supportive environment for children to explore athletic opportunities (White & Carter, 2021).

Technology integration has emerged as a transformative tool in addressing gaps in expertise and resources for sports education. Digital platforms, such as e-learning modules for physical education teachers, provide accessible and flexible training options, allowing educators to enhance their skills despite geographical or financial constraints. For instance, virtual coaching tools and video-based tutorials enable teachers to learn advanced coaching techniques and adapt them to the developmental needs of elementary students (Smith et al., 2019). These tools ensure consistent quality in teacher training, even in under-resourced schools.

Interactive technologies, such as wearable fitness trackers and gamified mobile apps, are particularly impactful in improving student participation and engagement. Wearable devices provide real-time feedback on physical activity, allowing teachers to monitor student performance and tailor programs to individual needs. Studies by Taylor et al. (2021) show that schools utilizing wearable technology witnessed a 30% improvement in students' fitness levels and motivation. Similarly, gamified learning apps transform physical education into an engaging and interactive experience, making sports more appealing to young learners and encouraging regular participation.

Beyond direct applications in classrooms, technology also enables data-driven decision-making in sports human resource development. Analytics tools help administrators identify gaps in teacher training, resource allocation, and student outcomes, enabling more targeted and efficient interventions (Williams & Patel, 2022). Moreover, technology-driven programs allow schools to build inclusive sports curriculums by providing adaptive solutions for children with diverse physical abilities, ensuring equitable participation.

Combining community involvement with technology integration creates a synergistic effect, amplifying the impact of each approach. For example, community-funded initiatives can invest in

technological tools, while digital platforms can connect schools with external experts and mentors. Together, these strategies bridge resource gaps, improve the quality of sports education, and foster a culture of collaboration and innovation in elementary school sports programs.

### ***3.5 Collaborative Frameworks and Future Directions***

Collaborative frameworks among schools, local governments, and sports organizations are critical for addressing the challenges and maximizing the opportunities in sports human resource development at the elementary level. Such partnerships facilitate the pooling of resources, expertise, and infrastructure, enabling schools to implement high-quality sports programs that they might not achieve independently. Regional partnerships, for instance, have proven effective in providing access to specialized coaching, advanced facilities, and training programs. A study by Johnson et al. (2020) highlighted that schools involved in collaborative sports initiatives experienced a 40% increase in student participation and a marked improvement in teacher preparedness compared to schools operating without external support.

One successful model involves shared funding frameworks, where multiple stakeholders, including local governments, private organizations, and community groups, contribute financial resources for sports development. These models not only ensure the sustainability of programs but also foster accountability and shared ownership among stakeholders. For example, Green and Taylor (2021) reported that a public-private partnership program in Australia enabled the construction of multi-use sports facilities, benefiting several schools in underserved areas. Such frameworks optimize resource utilization and create long-term benefits for students and educators alike.

Cross-institutional training programs also exemplify the value of collaboration. These programs bring together educators and coaches from various schools to participate in joint workshops, certifications, and knowledge-sharing sessions. Studies by White and Patel (2022) have demonstrated that cross-institutional training significantly enhances the professional capacity of sports educators, promoting innovative teaching practices and consistency in program delivery across schools.

Looking ahead, future efforts should emphasize the development of context-specific strategies tailored to the unique cultural, economic, and geographic conditions of different regions. For instance, rural schools might benefit more from mobile sports clinics and outreach programs, while urban schools could leverage advanced technological tools for training and monitoring. Research by Williams et al. (2021) advocates for stakeholder-driven needs assessments to design sports human resource strategies that are locally relevant and effective.

Additionally, more long-term research is needed to evaluate the sustained impact of digital tools and community-driven programs on student outcomes. Current studies often focus on short-term benefits, leaving gaps in understanding how these innovations influence long-term physical, social, and academic development. As Patel and Roberts (2020) argue, longitudinal studies are essential to refine strategies and identify areas for improvement over time.

To ensure a sustainable and inclusive approach, policymakers, educators, and community leaders must prioritize equitable resource allocation and foster an environment of collaboration. By addressing systemic disparities and incorporating innovative solutions, stakeholders can create a robust foundation for sports human resource development in elementary schools, ultimately fostering healthier and more active generations.

### ***Discussion***

While the review identifies several crucial strategies for developing sports human resources in elementary schools, there is a need for a more nuanced understanding of these strategies, especially in terms of their applicability across diverse educational contexts. One key aspect for improvement is broadening the geographical scope of the studies reviewed. The majority of the studies referenced are

from urban or well-resourced areas, with limited focus on rural and underserved regions. To ensure the relevance and inclusivity of these strategies, it is essential to incorporate studies from diverse educational systems, particularly those from low-income or rural areas where resource constraints significantly impact sports education (Jones & Carter, 2020). Including such studies would provide a more comprehensive view of how these strategies can be adapted or scaled in contexts with limited resources. Additionally, by exploring how challenges in different regions are overcome, this would offer valuable insights into context-specific solutions for improving sports human resource development.

Furthermore, while teacher professional development is identified as a central strategy for enhancing sports programs, the review could benefit from a more detailed examination of the challenges educators face in accessing these development opportunities, particularly in under-resourced settings. While digital platforms and online training are highlighted as effective tools for professional development (Miller & Roberts, 2020), these technologies are not universally accessible. Research suggests that teachers in rural or low-income schools may lack the infrastructure or technical skills to utilize these digital tools effectively (Smith & Brown, 2019). Therefore, a more balanced approach would examine the barriers to technology integration in these settings, such as digital illiteracy, limited internet access, and inadequate devices. The review could explore how schools and educational institutions can overcome these challenges, ensuring that all educators have equal access to professional development opportunities regardless of their location or socio-economic status.

The discussion on policy reforms also presents opportunities for deeper exploration. While the review acknowledges the importance of mandatory teacher certification standards and increased government funding for sports infrastructure (Green & Smith, 2019), it could provide more concrete examples of successful policy interventions, particularly in low-income and rural schools. For example, case studies of countries or regions where policies have been successfully implemented, along with data on the long-term impact on student participation and outcomes, would strengthen the argument for policy reforms. Moreover, the review could address the gap between policy intentions and real-world implementation. As pointed out by several studies, rural and under-resourced schools often face systemic barriers in accessing funding and resources despite the introduction of policies aimed at improving sports education (Jones & Carter, 2020). A deeper discussion of these barriers, and recommendations on how to bridge the gap between policy and practice, would add significant value to the research.

Lastly, while the integration of technology in sports human resource development is presented as a transformative approach (Williams et al., 2020), the review could benefit from a more critical discussion of the limitations of relying heavily on digital tools. While fitness trackers and gamified apps are shown to increase student engagement (Taylor et al., 2021), these tools often require substantial financial investment and maintenance. Schools in low-income areas, where budgets are stretched thin, may find it challenging to implement and sustain such technologies (White & Andrews, 2019). Additionally, the review could discuss the potential risks of data privacy concerns and the need for responsible data management practices, especially when using student data for tracking progress. A more thorough examination of these limitations would ensure a more balanced view of technology integration in elementary school sports programs. By considering both the advantages and drawbacks of these tools, the research can provide more comprehensive recommendations for their use in diverse educational settings.

In conclusion, while the strategies for developing sports human resources in elementary schools presented in this review are promising, further research is needed to address the challenges related to resource accessibility, policy implementation, and technology integration. Expanding the geographical scope of studies, offering more in-depth case studies, and considering the specific challenges faced by underserved schools will provide more nuanced insights into how these strategies can be implemented effectively across a range of educational contexts. With a deeper understanding of these factors, future



research can better guide the development of inclusive, sustainable, and equitable sports education programs that meet the needs of all students.

#### 4. CONCLUSION

The study highlights that developing sports human resources in elementary schools is crucial for fostering healthier, more active generations and identifying young talent for future success. Key findings emphasize the importance of professional development for educators, innovative curriculums, technology integration, and community collaboration in addressing gaps in sports education. However, challenges such as resource limitations, policy inconsistencies, and access disparities persist, particularly in underserved areas. This research suggests that collaborative approaches and tailored strategies are essential for creating sustainable and inclusive sports education systems. The findings have significant implications for policymakers, educators, and community stakeholders by offering evidence-based recommendations to improve sports education quality. Limitations of the study include its reliance on existing literature, which may lack longitudinal perspectives. Future research should focus on assessing the long-term impacts of digital tools and community-led initiatives and exploring region-specific strategies to ensure equitable and effective sports education for all students.

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